

What is claimed is:

1. A tire wheel assembly,

wherein a noise-reducing device is attached to a wheel rim in a cavity portion of a pneumatic tire, the noise-reducing device comprising a shell structure where a rough surface portion having a ten-point height of irregularities (Rz) in a range of 0.1 to 5.0 mm is provided on at least part of a surface, and

wherein a height of the shell structure from a rim sheet is set in a range of 10 to 70 % of a cross-sectional height of the tire.

2. The tire wheel assembly according to claim 1, wherein the shell structure is supported on a rim through a pair of elastic rings.

3. The tire wheel assembly according to claim 1, wherein the shell structure is formed of an annular tube.

4. The tire wheel assembly according to any one of claims 1 to 3, wherein a wall thickness of the shell structure is in a range of 0.4 to 1.0 mm.

5. The tire wheel assembly according to any one of claims 1 to 4,

wherein an area of the rough surface portion is at least 20% of the entire surface area of the shell structure, and

wherein the ten-point height of irregularities (Rz) of the rough surface portion is in a range of 0.1 to 3.0 mm.

6. The tire wheel assembly according to any one of claims 1 to 5, wherein the rough surface portion is formed in a manner that particles are fixed on the surface of the shell structure.

7. The tire wheel assembly according to claim 6, wherein a diameter of each of the particles is in a range of 0.1 to 3.0 mm.

8. A noise-reducing device intended to be attached to a wheel rim in a cavity portion of a pneumatic tire, comprising:

a shell structure where a rough surface portion having a ten-point height of irregularities (Rz) in a range of 0.1 to 5.0 mm is provided on at least part of a surface,

wherein a height of the shell structure from a rim sheet is set in a range of 10 to 70 % of a cross-sectional height of the tire.

9. The noise-reducing device according to claim 8, wherein the shell structure is supported on a rim through a pair of elastic rings.

10. The noise-reducing device according to claim 8, wherein the shell structure is formed of an annular tube.

11. The noise-reducing device according to any one of claims 8 to 10, wherein a wall thickness of the shell structure is in a range of 0.4 to 1.0 mm.

12. The noise-reducing device according to any one of claims 8 to 11, wherein an area of the rough surface portion is at least 20% of the entire surface area of the shell structure, and

wherein the ten-point height of irregularities (Rz) of the rough surface portion is in a range of 0.1 to 3.0 mm.

13. The noise-reducing device according to any one of claims 8 to 12, wherein the rough surface portion is formed in a manner that particles are fixed on the surface of the shell structure.

14. The noise-reducing device according to claim 13, wherein a diameter of each of the particles is in a range of 0.1 to 3.0 mm.